

**REMARKS**

The Office Action has been carefully considered. Reconsideration and allowance of the application and all presently pending claims are respectfully requested.

Upon review of this file, it was noted that the Response with Amendments to Advisory Action and Submission Under 37 C.F.R. 1.114 previously filed with the RCE and Extension of Time on April 19, 2005, added new claims totally \$550.00. The Response authorized the U.S.P.T.O. to charge any fees required therefor (including fees for net addition of claims) to our Deposit Account (20-0778). At the time of the present filing, the Deposit Account has not yet been charged for this amount. Enclosed is a Credit Card Authorization in the amount of \$550.00 to cover these fees.

Upon entry of the claim amendments in this Response, claims 1-3, 6, 7, 9-26, 60, 62-73, 79, 82-83, 85-97, 99, and 104-134 are pending in this application. Claims 1, 3, 9, 25, 26, 60, 62-69, 79, 82-83, 85-92, 99, 104, and 106-110 have been amended. Claims 111-134 are newly added. Claims 4-5, 8, 27-59, 61, 74-78, 80-81, 84, 98, and 100-103 have been canceled. Applicants affirm the election of group 1. The prior art made of record has been considered, but is not believed to affect the patentability of the presently pending claims. Applicants believe that no new matter has been added and that a new search is not necessary.

Applicants thank the Examiner and her Supervisor for agreeing to discuss this case on September 9, 2005 via a phone conference. In addition, Applicants thank the Examiner and her Supervisor for agreeing that amended claim 1 and new claim 111 overcome the cited references.

**112 Rejection**

The claims rejected under section 112, first paragraph, have been amended or canceled, thereby rendering the rejection moot. Thus, the rejection should be withdrawn.

## CLAIMS

### Independent Claim 1 and Dependent Claims 2-3, 6-7, 9-26, and 97

Claim 1 is rejected under 35 U.S.C. §102(e) as purportedly being anticipated by Nie et al. (U.S. Patent Application 2003/0148544). In addition, claim 1 has been rejected under 35 U.S.C. §102(b) as purportedly being anticipated by Chee *et al.* (U.S. Patent 6,544,732). Amended Claim 1 reads as follows:

1. A structure, comprising:
  - a first structure embedded within pores of a second structure,
    - wherein the first structure includes a nanospecies having a first characteristic and a second detectable characteristic, wherein a second detectable energy is produced corresponding to the second detectable characteristic upon exposure to a first energy; and
    - wherein the second structure includes a porous material having the first characteristic and a plurality of pores, wherein the first characteristic of the nanospecies and the first characteristic of the porous material are the same, ***where the interaction of the first characteristic of the nanospecies with the first characteristic of the porous material cause the nanospecies to interact with the porous material and become embedded within the pores of the porous material, wherein the nanospecies remain embedded within the pores without the addition of a sealant,*** and wherein the first characteristic is selected from a hydrophobic characteristic, a hydrophilic characteristic, an electrostatic characteristic, and combinations thereof, and ***a probe, bonded to the porous material, and a fluorophore and a quenching moiety bonded to the probe.***

(Emphasis added).

Applicants traverse the rejection noted above and submit that the rejection of claim 1 in view of Nie and Chee should be withdrawn because neither Nie nor Chee disclose, teach, or suggest at least the highlighted portions in amended claim 1 above. In particular, both Nie and Chee state that the nanospecies are sealed within the pores with a sealant or encapsulant. In addition, neither Nie nor Chee teach “a probe, bonded to the porous material, and a fluorophore and a quenching

moiety bonded to the probe”. During the phone conference on September 9, 2005, the Examiner and her Supervisor agreed that neither Nie nor Chee teach, suggest, or disclose the highlighted portions in amended claim 1 above or the combinations of the features of amended claim 1. In addition, the references cited in the current and previous Office Actions, taken individually or in combination, do not teach, suggest, or disclose the highlighted portions in amended claim 1 above or the combinations of the features of amended claim 1. Therefore, Applicants respectfully request that the rejection to claim 1 be withdrawn.

Applicants respectfully submit that pending dependent claims 2-3, 6-7, 9-26, and 97 include every feature of independent claim 1 and that each of Nei and Chee fail to disclose, teach, or suggest at least the features of claim 1 highlighted hereinabove. Thus, pending dependent claims 2-3, 6-7, 9-26, and 97 are also allowable over the prior art of record. *In re Fine*, 5 U.S.P.Q.2d 1596, 1600 (Fed. Cir. 1988).

**New Independent Claim 111 and Dependent Claims 60, 62-73, 99, 112, and 113**

Claim 111 reads as follows:

111. A structure, comprising:  
a first structure embedded within pores of a second structure,  
wherein the first structure includes a nanospecies having a first characteristic and a second detectable characteristic, wherein a second detectable energy is produced corresponding to the second detectable characteristic upon exposure to a first energy, ***wherein the nanospecies is a hydrophobic coated semiconductor quantum dot, wherein the coating includes a hydrophobic compound coated on the semiconductor quantum dot, wherein the hydrophobic compound is selected from at least one of the following: an  $O=PR_3$  compound, an  $O=PHR_2$  compound, an  $O=PHR_1$  compound, a  $H_2NR$  compound, a  $HNR_2$  compound, a  $NR_3$  compound, a  $HSR$  compound, a  $SR_2$  compound, and combinations thereof, wherein  $R$  is selected from  $C_1$  to  $C_{18}$  hydrocarbons, and combinations thereof;*** and  
wherein the second structure includes a porous material having the first characteristic and a plurality of pores, ***wherein the porous material is silica having a hydrocarbon-derivatized surface,*** wherein the first characteristic of the nanospecies and the first characteristic of the porous material are the same, where the interaction of the first characteristic of the nanospecies with the first characteristic of the porous material cause the nanospecies to interact with the porous material and become embedded within the pores of the porous material, ***wherein the nanospecies remain embedded within the pores without the addition of a sealant, and a probe, bonded to the porous material, and a fluorophore and a quenching moiety bonded to the probe.***

(Emphasis added).

During the phone conference on September 9, 2005, the Examiner and her Supervisor agreed that neither Nie nor Chee teach, suggest, or disclose the highlighted portions in amended claim 111 above or the combinations of the features of amended claim 111. In addition, the references cited in the current and previous Office Actions, taken individually or in combination, do not teach, suggest, or disclose the highlighted portions in amended claim 111 above or the combinations of the features of amended claim 111. Therefore, Applicants respectfully request that claim 111 be allowed.

Applicants respectfully submit that pending dependent claims 60, 62-73, 99, 112, and 113 include every feature of independent claim 111 and that the cited references fail to disclose, teach, or suggest at least the features of claim 111 highlighted hereinabove. Thus, pending dependent claims 60, 62-73, 99, 112, and 113 are also allowable over the prior art of record.

**New Independent Claim 114 and Dependent Claims 79, 85-96, 115, and 116**

Claim 114 reads as follows:

114. A structure, comprising:  
a first structure embedded within pores of a second structure,  
wherein the first structure includes a nanospecies having a first characteristic and a second detectable characteristic, wherein a second detectable energy is produced corresponding to the second detectable characteristic upon exposure to a first energy, wherein the nanospecies is a hydrophobic coated semiconductor quantum dot, *wherein the coating includes a hydrophobic compound coated on the semiconductor quantum dot, wherein the hydrophobic compound is selected from at least one of the following: an  $O=PR_3$  compound, an  $O=PHR_2$  compound, an  $O=PHR_1$  compound, a  $H_2NR$  compound, a  $HNR_2$  compound, a  $NR_3$  compound, a  $HSR$  compound, a  $SR_2$  compound, and combinations thereof, wherein  $R$  is selected from  $C_1$  to  $C_{18}$  hydrocarbons, and combinations thereof;* and  
wherein the second structure includes a porous material having the first characteristic and a plurality of pores, wherein the first characteristic of the nanospecies and the first characteristic of the porous material are the same, where the interaction of the first characteristic of the nanospecies with the first characteristic of the porous material cause the nanospecies to interact with the porous material and become embedded within the pores of the porous material, *wherein the nanospecies remain embedded within the pores without the addition of a sealant, and a probe, bonded to the porous material, and a fluorophore and a quenching moiety bonded to the probe.*

(Emphasis added).

Applicants submit that the cited references do not teach, suggest, or disclose the highlighted portions in amended claim 114 above or the combinations of the features of amended claim 114. In

addition, the references cited in the current and previous Office Actions, taken individually or in combination, do not teach, suggest, or disclose the highlighted portions in amended claim 114 above or the combinations of the features of amended claim 114. Therefore, Applicants respectfully request that claim 114 be allowed.

Applicants respectfully submit that pending dependent claims 79, 85-96, 115, and 116 include every feature of independent claim 114 and that the cited references fail to disclose, teach, or suggest at least the features of claim 114 highlighted hereinabove. Thus, pending dependent claims 79, 85-96, 115, and 116 are also allowable over the prior art of record.

**New Independent Claim 117 and Dependent Claims 82-83, 104, and 118-134**

Claim 117 reads as follows:

117. A structure, comprising:  
a first structure embedded within pores of a second structure,  
wherein the first structure includes a nanospecies having a first characteristic and a second detectable characteristic, wherein a second detectable energy is produced corresponding to the second detectable characteristic upon exposure to a first energy; and  
wherein the second structure includes a porous material having the first characteristic and a plurality of pores, ***wherein the porous material is silica having a hydrocarbon-derivatized surface***, wherein the first characteristic of the nanospecies and the first characteristic of the porous material are the same, where the interaction of the first characteristic of the nanospecies with the first characteristic of the porous material cause the nanospecies to interact with the porous material and become embedded within the pores of the porous material, ***wherein the nanospecies remain embedded within the pores without the addition of a sealant, and a probe, bonded to the porous material, and a fluorophore and a quenching moiety bonded to the probe.***

(Emphasis added).

Applicants submit that the cited references do not teach, suggest, or disclose the highlighted portions in amended claim 117 above or the combinations of the features of amended claim 117. In addition, the references cited in the current and previous Office Actions, taken individually or in combination, do not teach, suggest, or disclose the highlighted portions in amended claim 117 above or the combinations of the features of amended claim 117. Therefore, Applicants respectfully request that claim 117 be allowed.



Applicants respectfully submit that pending dependent claims 82-83, 104, and 118-134 include every feature of independent claim 117 and that the cited references fail to disclose, teach, or suggest at least the features of claim 117 highlighted hereinabove. Thus, pending dependent claims 82-83, 104, and 118-134 are also allowable over the prior art of record.

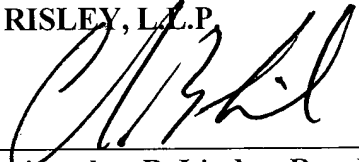
### CONCLUSION

Applicants respectfully request that this application and all presently pending claims be allowed to issue. If the Examiner has any questions or comments regarding Applicants' response, the Examiner is encouraged to telephone Applicants' undersigned counsel.

Respectfully submitted ,

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